Lifelong Learning Motivation Scale (LLMS):Validity and Reliability Study

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Article Info	ABSTRACT

The aim of this study is to develop a scale to measure lifelong learning skills of young and adult individuals. The participants of the study consisted of 275 individuals between the ages of 14-55. While creating the scale item pool, firstly, a detailed literature review was conducted. Scales similar to the subject were examined and an 18-item form was created after the examinations. The scale item pool was presented to two experts who are academicians in the field of lifelong learning and a scale development expert. After the corrections were made, the scale trial form was sent to the participants. Exploratory factor analysis was conducted to determine the construct validity of the scale. As a result of the factor analysis, 7 items were removed from the scale. As a result of the exploratory factor analysis, it was determined that the scale consisted of five factors. The first factor consists of 5 items and the other factors consist of 3 items each. Confirmatory factor analysis was conducted to determine the relationship between the factors, the relationship between the variables and the factors, the relationship between the factors and each other, and the level of explanation of the factors to the model. The Croneach alpha reliability value of the scale was determined as .646. As a result, the Lifelong Learning Motivation Scale (LLMSS) is intended to be a scale that fills the gap in the literature and can be developed and used.

INTRODUCTION

If we compare the current century with the last century in terms of the creation, acquisition and sharing of knowledge, we can see that incredible changes have taken place. As a result of this change, the age we are in is called the 'information age'. "Knowledge has become a superior economic resource, more important than goods and often more important than money. Information and knowledge, which are considered as economic goods, are now more important than cars, oil, steel or other products of the industrial age" (Ata, 2006). Thanks to technological tools such as the Internet, the breadth and depth of information has increased. The effects of this change on the people needed by society are inevitable. That is why nowadays almost all students take a course outside school and many adults attend courses and certificate programmes for various knowledge and skills. Therefore, the concepts of education and learning are no longer the concern of educators only, but have become more relevant to the general public than ever before. At this point some questions arise. These are: - How can we create autonomous (continuous, stimulating and resource-rich) learning environments that develop learners' abilities? - How can we create lifelong learning environments in which cognitive and psychological conditions are favourable to the development of learners' achievement and personal autonomy (Derrick, 2003).

Today, the aim of education is to ensure that individuals become individuals with active adaptation capacities that will carry the society beyond its current level and be the change itself, rather than unquestioning compliance with environmental conditions and remaining as they are (Yeşilyaprak, 2010). Obligations such as adapting to change, not being indifferent to change, and moving oneself and the society forward have invalidated the limitation of education only to schools in terms of space and years covering basic education in terms of time. This has led to the birth and development of the concept of lifelong learning.

Kulich (1982) defined lifelong learning as the provision of education to individuals throughout their lives, while White (1982) saw it as the acquisition of the knowledge necessary for individuals to manage their lives (Günüç, S., Kuzu, A., & Odabaşı, H. 2012). In other words, lifelong learning refers to various activities carried out for learning from birth to death.

In the 'Strategy Document on Lifelong Learning in Turkey' prepared by the Ministry of National Education and approved by the High Planning Council on 5 June 2009, lifelong learning is defined as 'all kinds of learning activities in which individuals participate throughout their lives in order to improve their knowledge, skills, interests and competences in personal, social, community and professional fields'.

Today, lifelong learning is a contemporary phenomenon that constitutes the guiding element of educational policies. In order to analyse this phenomenon in all its aspects, it is necessary to define it conceptually and to determine what is understood and attributed to it. The terminology and definition of lifelong learning have changed within various systems and due to social, psychological and economic influences. Based on these changes, it is possible to draw a general picture of lifelong learning. "The reason why almost all of the educational experiences usually referred to as lifelong learning/education practices are adult education activities is due to the ambiguity of the dividing lines between the concepts of adult education and lifelong learning/education. However, at the point where lifelong learning/education discussions have reached, it is stated that the concept has a broader content summarised as "from cradle to grave", which includes restructuring at all levels of education systems, and although it includes the dissemination and development of adult education practices, this concept cannot be reduced to this" (Bağcı, 2007).

The four main objectives of lifelong learning are learning to know, learning to do, learning to be and learning to live together. Learning is understood as acquiring knowledge from different sources and using this knowledge in problem solving, planning or decision making phases of everyday life; it is also understood as using the computer as a tool to access information. Lifelong learning requires specific skills such as supporting learning and organising the learning process itself. In order to realise lifelong learning, literacy skills such as information literacy, digital literacy and media literacy are needed to acquire, process, assimilate and evaluate new knowledge and skills. Lifelong learning involves questioning one's environment, knowledge, skills and

interactions, as well as exploring and appreciating new ideas to gain a new perspective. It develops the ability to use the mind actively (Edwards, 2008).

When the studies conducted in Turkey are examined, lifelong learning dispositions in university students (Demirel & Coşkun, 2012), prospective teachers (Tatlısu, 2016, Erdoğan, 2014), educational administrators (Gürkan, 2017), adult employees (Babanlı, 2018) and graduate students (Adabaş, 2016) samples were addressed. Lifelong learning tendency (Gür Erdoğan & Arsal, 2016; Diker Coşkun, 2009; Yaman, 2014), attitude (Karaca, Çalışkan, Dönmez, & Durak, 2021), perception (Ünal & Kalçık, 2017), online interaction (Kara, Kukul & Çakır, 2021), skill (Çiftcibaşı, Korkmaz, & Karamustafaoğlu, 2020) and competence (Uzunboylu & Hürsen, 2011) were also addressed in the scales developed. In this study, the motivation variable, which is one of the necessary conditions for learning, is discussed. A scale was developed aiming to reveal the motivation status of lifelong learners.

Therefore, this study aims to examine the digital well-being of individuals. Depending on this purpose, the following sub-objectives will be sought:

➜ What is the construct validity of the Motivation for Lifelong Learning Scale?

➜ What is the reliability of the Lifelong Learning Motivation Scale?

➜ What is the level of lifelong learning motivation of the participants?

METHOD

This research is a scale development study. The processes applied in the validity and reliability study of the Lifelong Learning Motivation (LLMS) Scale and the characteristics of the research group are presented below.

Research Design

This study, which aims to develop a valid and reliable scale to determine the cognitive, affective and psychomotor motivation of a lifelong learner, was conducted in a descriptive survey model. Descriptive survey model is a research model that serves to describe the situations that have been experienced or are being experienced as they are (Karasar, 2007) and summarises the characteristics of the collected data (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2017). For this reason, the survey model was used in this study.

Research Universe and Sample

While creating the item pool, 87 sentences were written in total. Overlapping, distancing from the definition framework, etc. were taken into consideration and as a result, it was decided to include 31 items in the item pool. As a result of the opinions of educational technology, psychological counsellor and language experts, it was decided to include 18 items in the pilot application. In scale development studies, it is recommended that it would be correct to reach at least 10 times the number of participants in the item pool (Korkmaz, Usta, & Kurt, 2014). Research data were obtained from 275 participants in the first half of 2023. The demographic information of the participants is presented in the table below.

Table 1. *Demographic data*

Gender	Male	Female	Total
14-24 years	25	28	53
25-34 years	30	47	77
35-44 years	52	35	87
45-55 years	28	30	58
TOTAL	**135**	**140**	**275**

Establishing the Item Pool

The European Framework of Key Competences for Lifelong Learning has identified eight key competences that need to be developed for personal success, active citizenship, social inclusion and employment in the knowledge society (European Commission, 2007; as cited in Beycioğlu & Konan, 2008). In the first step of the scale development process, the relevant literature was analysed in a wide range (Bryce 2006; Knapper & Cropley, 2000) including skills, perceptions, attitudes, dispositions and knowledge variables.

The item pool was started to be formed by considering many dimensions, especially the items in the scales. The researchers wrote 87 sentences for all dimensions. 31 items were included in the item pool, and 31 items were kept in the pool as a result of the pilot study and new expert opinion. After the necessary arrangements were made, the scale form consisting of 18 items (14 positive and 4 negative) was made ready for the actual application. The scale was coded on a 5-point Likert scale with the premises of fully reflects (5), reflects a lot (4), reflects moderately (3), reflects a little (2) and does not reflect at all (1) for positive items; negative items were coded in the opposite way.

Data Analysis

During the development of the scale, SPSS and AMOS software were used to analyse the data. Principal component analysis was used to determine the construct validity and factor loadings of the scale developed to measure the motivation of lifelong learners (Büyüköztürk, 2002). In case of suitability for factor analysis, Kaiser- Meyer- Olkin (KMO) coefficient and Barlett Sphericity test results were examined. In the exploratory factor analysis (EFA), 18 items, 4 of which were negative, were coded and factor loadings of 0.40 and above were applied to examine the suitability of the items to the selected model (Büyüköztürk, 2002). Therefore, this lower limit was determined as 0.40 in this study. Eigenvalue and scree plot were analysed to determine the number of factors. With 11 items, item discriminations were analysed by independent sample t-test. In addition, the significance of the 27% lower and upper group item scores were analysed to see how the scale items affected the motivation levels of individuals. The validity of the scale consisting of 11 items in total was ensured. After the exploratory factor analysis, confirmatory factor analysis was performed. Some value ranges (CFI, GFI, RMSEA, AGFI, NFI) were taken into consideration to verify the acceptability of the scale (Byrne, 2011; Çokluk, 2014).

Internal consistency coefficient was calculated for the reliability of the scale. Crobach alpha, Guttmann split-half, Sperman-Brown values were analysed for internal consistency coefficient.

FINDINGS

Findings Related to Validity

The construct validity and item discrimination values of the lifelong learning motivation scale were calculated. The results obtained are as follows.

Construct Validity

<u>*Findings Related to Exploratory Factor Analysis (EFA):*</u> The KMO coefficient and Barlett's test are used to determine whether exploratory factor analysis should be performed. KMO coefficient greater than 0.60 and Barlett's test being significant (p<0.05) indicate that the data are suitable for factor analysis (Büyüköztürk, 2002). KMO= 0.712 and Barlett's test χ^2= 745.00 sd= 55 (p= 0.000). As a result of the analysis, a structure consisting of 5 dimensions was obtained. Item loadings were analysed and items with loadings lower than 0.40 were not included in the analysis. Care was taken to ensure that the content validity was not impaired, and the factor loadings were re-examined according to the difference of 0.1 between the factor loadings for overlap control. As a result, it was determined that the items were grouped under 3 factors and explained 49.72% of the total variance. Accordingly, the distribution of factor eigenvalues is given in Graph 1.
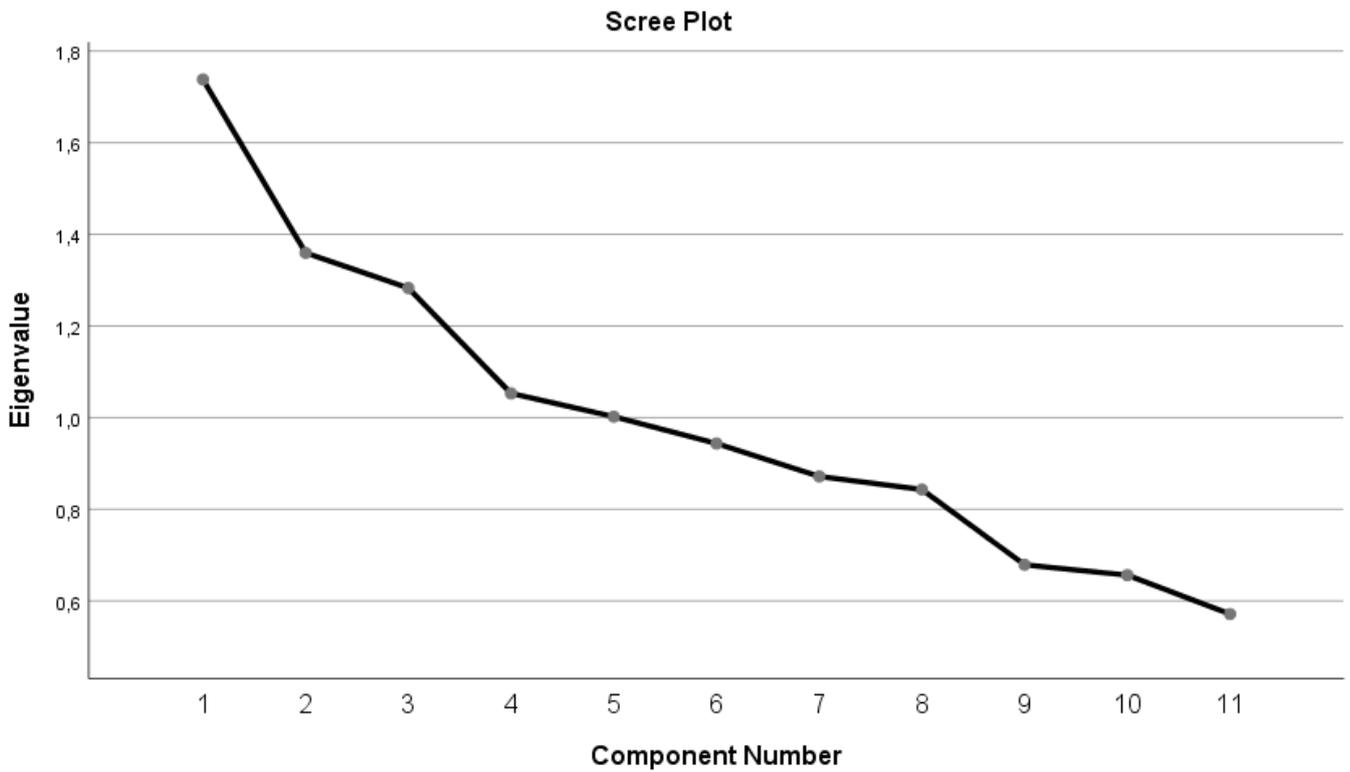
Figure 1. *Slope Slope Graph*

Table 2 shows the exploratory factor analysis. As seen in the table, a three-factor structure dimension was analysed. Item loadings and variance explanation amounts are shown in the table.

Table 2. *Results of exploratory factor analysis*

	F1	F2	F3
Item1	,707		
Item2	,679		
Item3	,672		
Item4	-,387		
Item5	,352		
Item6		,767	
Item7		,748	
Item8		-,403	
Item9			,546
Item10			,497
Item11			-,456
Variance explained	15,800	17,362	16,558
Eigenvalue	1,738	1,360	1,283

As seen in Table 2, the first factor of the scale includes 4 items and the factor loadings are in the range of 0.352-0.707. When we look at the whole scale for this factor, it is seen that the eigenvalue is 1.738. It is seen that it has the power to explain 15.800% of the overall variance. The second factor of the scale has 3 items. The factor loadings are in the range of 0.403-0.767, the eigenvalue is 1.360 and the variance is 17.362. The third factor consists of 2 items. Factor loadings are in the range of 0.456-0.546. The eigenvalue of the factor is 1.283 and its variance is 16.558%.

Findings Related to Confirmatory Factor Analysis (CFA): As a result of the exploratory factor analysis, a scale consisting of 11 items with 3 factors was obtained. Confirmatory factor analysis was conducted using AMOS software with the data obtained from the analysis. Confirmatory factor analysis is used to determine the relationship between factors, the relationship between variables and factors, and the level of explanation of factors to the model (Brown, 2015).

Table 3. *Comparison with standard goodness-of-fit measures*

Fit Dimensions	Perfect Fit	Acceptable Compliance	Research Data
χ^2/sd	$0 \leq \chi^2 \leq 3$	$3 \leq \chi^2 < 5$	2.212
RMSEA	$0 \leq RMSEA \leq .05$	$.05 \leq RMSEA \leq .08$	0.058
GFI	$.90 \leq GFI \leq 1$	$.85 \leq GFI \leq .90$	0.88
AGFI	$.90 \leq AGFI \leq 1$	$.80 \leq AGFI \leq .90$	0.84
CFI	$.95 \leq CFI \leq 1$	$.90 \leq CFI \leq .95$	0.90
NFI	$.95 \leq NFI \leq 1$	$.90 \leq NFI \leq .95$	0.90

Confirmatory factor analysis results are given in Table 3. According to these results, when the fit index values of the CFA model established with 275 data were examined, it was determined that the scale exhibited an excellent fit with a chi-square value of 2.212 (Byrne, 2013). When the RMSEA value is examined, it is below the critical value, indicating that it is within the acceptable fit index range (Schermelleh-Engel, Moosbrugger, & Müller, 2003). When the remaining GFI, AGFI, CFI and NFI values are examined, it is seen that they exhibit acceptable fit according to the critical values (Marsh, Balla & Mcdonald, 1988; Byrne, 2013).

Item Discrimination

In the method of calculating the discrimination power of the scale items, the results obtained from the individual items are sorted from largest to smallest and the lower 27% and upper 27% groups are found. At this stage, independent sample t-test analysis was applied with the lower and upper groups and the t values indicating the discrimination powers are shown in Table 4.

Table 4. Item Discrimination

F1		F2		F3		F1	17,42
I.	**t**	**I.**	**t**	**I.**	**t**	**F2**	13,20
I1	-12.520	I1	-6.124	I1	-4.752	**F3**	7,99
I2	-8.102	I2	-10.842	I2	-4.305		
I3	-9.351	I3	-9.415	I3	-6.345	**Total**	-42,054
I4	-8,523						
I5	-7.125						

When Table 4 is examined, it is seen that the values found with the independent sample t-test for the 11 items that make up the scale are between -4.305 and -12.520. The total t-value of the scale was -42.054 and the results were found to be significant ($p < 0.001$). Accordingly, it can be stated that the discrimination level of the scale is high.

Item factor correlations

Item-total correlation method was used to find out the level of serving the purpose of the items. The item-factor correlation values of the items are given in Table 5.

Table 4. Item Discrimination

F1		F2		F3	
I.	**t**	**I.**	**t**	**I.**	**t**
I1	.721	I1	.612	I1	.636
I2	.646	I2	.752	I2	.702
I3	.762	I3	.710	I3	.686
I4	.611				
I5	.645				

It was observed that the item factor correlation coefficients given in Table 5 took values between 0,611 and 0,762. Each item was found to have a positive and significant relationship with the whole scale (p<0.001). According to this result, considering the item factor correlation values, it is seen that each item in the scale serves the purpose.

Findings Regarding the Reliability of the Scale

In order to calculate the reliability of the scale, the following analysis results were examined.

Internal Consistency Level

Spearman Brown, Cronbach's Alpha and Guttmann Split-Half coefficients were examined for the five factors and the whole scale. Table 6 shows the reliability coefficients.

Table 5. Factor reliability coefficients

Factors	Item Number	Spearman Brown	Gutt-mann Split-Half	Cronbach's Alpha
F1	5	.713	.642	.726
F2	3	.623	.492	.611
F3	3	.531	.565	.598
Total	**11**	**.566**	**.652**	**.664**

When Table 5 is examined, the Spearman Brown coefficient of the scale consisting of 11 items and 3 factors in total is 0.566; Guttmann Split-Half is 0.652; and Cronbach's alpha value is 0.664. It can be said that the reliability coefficients of the scale on item basis and in its entirety are within the appropriate value range (Eroğlu, 2008; Kline, 1994). Accordingly, it can be concluded that the items and the whole scale are reliable and consistent.

DISCUSSION, CONCLUSION, RECOMMENDATIONS

In this study, a scale for measuring lifelong learning motivation was developed and a validity and reliability study was conducted. As a result of the research conducted in this direction, the Lifelong Learning Motivation Scale (LLMS) consisting of 3 factors and 11 items was developed. The first factor consists of 5 items and the other two factors consist of 3 items each.

The scale was prepared in a 5-point Likert scale. Positive items were coded with the premises of completely reflects (5), very reflects (4), moderately reflects (3), slightly reflects (2) and not reflects at all (1); negative items were coded in the opposite way. Exploratory factor analysis revealed a five-dimensional scale. In the process of factor allocation, items with factor loadings greater than 0.40 were assigned to the factors. In the construct validity analysis stage, factor loadings, variance explanatory power and eigenvalues were analyzed and as a result, it was seen that the construct validity of the scale was at an appropriate level. After the exploratory factor analysis revealed that the scale consisted of five factors, confirmatory factor analysis

was conducted to confirm the factor structures. As a result of the confirmatory factor analysis, it was seen that the scale model was confirmed by the data. The validity and reliability studies of the scale were conducted with 275 individuals between the ages of 14-55. The reliability analysis of the scale was examined with Spearman Brown, Guttman split-half and Cronbach's alpha values. These values show that the scale can provide reliable measurements (Büyüköztürk, 2002). As a result of the independent samples t-test conducted to determine the difference between the upper and lower 27% groups in item discrimination, the discrimination of the scale items and the entire scale is high. With this scale, it is thought that a measurement tool measuring lifelong learning motivation has been introduced to the literature. Today, one of the attitudes required from students in primary, secondary and higher education is lifelong learning. In a way, we can say that our education system is shaped on the basis of this phenomenon. However, this process needs to be examined in more detail in terms of adult design in order to shed light on all learning activities. Ertürk (1979) listed the basic questions that educators who develop curricula should answer and stated that efficient educational experiences can be organized to the extent that these questions can be answered. In this sense, the aim is to examine lifelong learning with curriculum development methods and to offer suggestions for the identification, organization and evaluation of effective educational experiences. In this way, new programs can be developed more effectively. Curriculum development is defined as a set of dynamic relationships between the objectives, content, teaching-learning processes and evaluation elements of an educational program (Demirel, 2004). At this point, how all components of an educational program will be structured according to the lifelong learning approach gains importance.

Lifelong learning is a characteristic that students need to develop throughout their educational life. University education is not sufficient to acquire this characteristic. For this reason, the philosophy of lifelong learning should be taken as a basis at all levels of education, starting from pre-school education, and 'learning to learn' should be essential. "Learning to learn", "using learning resources effectively", "setting and achieving learning goals", "valuing knowledge and personal development". These educational experiences should be part of the basic practices of national education rather than slogans. Lifelong learning should not be perceived as a new teaching method. It should be adopted as the philosophy of all educational environments where 'learning' takes place.

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No	Lifelong Learning Motivation Scale	Not reflective at all	Less reflective	Moderately reflective	Too reflective	Completely reflectiver
Factor 1						
1	I strive to acquire new knowledge and skills without feeling any obligation.	1	2	3	4	5
2	The difficulties I face in the learning process encourage me to make more effort.	1	2	3	4	5
3	The constant effort to learn something is a passion for me.	1	2	3	4	5
4	I try to learn new things every day.	1	2	3	4	5
5	I focus on acquiring new knowledge to achieve my goals.	1	2	3	4	5
Factor 2						
6	I am excited to learn new subjects.	1	2	3	4	5
7	I take opportunities to continuously improve myself.	1	2	3	4	5
8	Not learning fast enough or experiencing failure does not affect me negatively	1	2	3	4	5
Factor 3						
9	I enjoy sharing my knowledge and skills with others.	1	2	3	4	5
10	It is important for me to continue learning at every stage of my life.	1	2	3	4	5
11	I like to strive to learn new things and pursuing different interests.	1	2	3	4	5